AMENDMENTS TO THE CLAIMS

Applicant has submitted a new complete claim set showing marked up claims with insertions indicated by underlining and deletions indicated by strikeouts and/or double bracketing.

1. (Currently Amended) A method of selecting an operating parameter value for supplying energy to an ablation electrode, comprising:

(a) receiving a first signal representing a value of a ~~fluid~~ <u>blood</u> flow rate;

(b) receiving a second signal representing a value of an impedance;

(c) receiving a third signal representing a value of a <u>positive</u> distance from an ablation electrode surface to a target tissue surface; and

(d) selecting a value for an operating parameter for supplying energy to the ablation electrode as a function of the first, second and third signals.

2. (Original) The method according to claim 1 wherein (d) comprises selecting the operating parameter value based on relationships established between (1) values of the operating parameter and (2) fluid flow rate values, impedance values and distance values.

3. (Original) The method according to claim 2, wherein the relationships are established with analyses of a numerical model of transmission of energy to biological tissue by an ablation electrode.

4. (Original) The method according to claim 3 wherein the numerical model comprises a finite element model.

5. (Currently Amended) <u>A method of selecting an operating parameter value for supplying energy to an ablation electrode, comprising:</u>

<u>(a) receiving a first signal representing a value of a fluid flow rate;</u>

<u>(b) receiving a second signal representing a value of an impedance;</u>

(c) receiving a third signal representing a value of a positive distance from an ablation electrode surface to a target tissue surface; and

(d) selecting a value for an operating parameter for supplying energy to the ablation electrode as a function of the first, second and third signals;

wherein:

(d) comprises selecting the operating parameter value based on relationships established between (1) values of the operating parameter and (2) fluid flow rate values, impedance values and distance values;

the relationships are established with analyses of a numerical model of transmission of energy to biological tissue by an ablation electrode;

the numerical model comprises a finite element model; and

~~The method according to claim 4 wherein,~~ to model a tissue temperature distribution, the numerical model comprises equations for modeling an electric field created by the ablation electrode, heat generated by the electric field, and a velocity field of the fluid flow.

6. (Original) The method according to claim 5 wherein the numerical model comprises the following equations to model tissue temperature distribution:

$$\nabla \bullet \sigma \nabla \varphi = 0 \ ;$$

$$\rho c\left(\frac{\delta T}{\delta t} + U\frac{\delta T}{\delta x} + V\frac{\delta T}{\delta y} + W\frac{\delta T}{\delta z}\right) = \nabla \bullet \left(k \nabla T\right) + J \bullet E \ ;$$

$$\rho\left(\frac{\delta U}{\delta t} + U\frac{\delta U}{\delta x} + V\frac{\delta U}{\delta y} + W\frac{\delta U}{\delta z}\right) = -\frac{\delta P}{\delta x} + \mu\left(\frac{\partial^2 U}{\partial x^2} + \frac{\partial^2 U}{\partial y^2} + \frac{\partial^2 U}{\partial z^2}\right) \ ;$$

$$\rho\left(\frac{\delta V}{\delta t} + U\frac{\delta V}{\delta x} + V\frac{\delta V}{\delta y} + W\frac{\delta V}{\delta z}\right) = -\frac{\delta P}{\delta y} + \mu\left(\frac{\partial^2 V}{\partial x^2} + \frac{\partial^2 V}{\partial y^2} + \frac{\partial^2 V}{\partial z^2}\right) \ ;$$

$$\rho\left(\frac{\delta W}{\delta t} + U\frac{\delta W}{\delta x} + V\frac{\delta W}{\delta y} + W\frac{\delta W}{\delta z}\right) = -\frac{\delta P}{\delta z} + \mu\left(\frac{\partial^2 W}{\partial x^2} + \frac{\partial^2 W}{\partial y^2} + \frac{\partial^2 W}{\partial z^2}\right) \ ; \textbf{ and}$$

$$\frac{\delta U}{\delta x} + \frac{\delta U}{\delta y} + \frac{\delta U}{\delta z} = 0 \ .$$

7. (Original) The method according to claim 2, wherein the relationships are established with analyses of an *in vitro* model of transmission of energy to biological tissue by an ablation electrode.

8. (Original) The method according to claim 1, wherein the second signal, representing the value of the impedance, comprises a signal representing an electrode geometry.

9. (Original) The method according to claim 1, wherein the second signal, representing the value of the impedance, represents an impedance into which energy is supplied.

10. (Original) The method according to claim 1, wherein (d) comprises selecting a plurality of values for an operating parameter, each value corresponding to a separate time during the supplying of energy to the ablation electrode.

11. (Cancelled)

12. (Original) The method according to claim 1, wherein (d) comprises selecting a value for each of a plurality of operating parameters.

13. (Cancelled)

14. (Original) The method according to claim 1, wherein the operating parameter is a maximum temperature allowed for the ablation electrode.

15. (Original) The method according to claim 1, wherein the operating parameter is power applied to the ablation electrode.

16. (Original) The method according to claim 1, wherein the operating parameter is voltage of the energy supplied to the ablation electrode.

17-19. (Cancelled)

20. (Original) The method according to claim 1, wherein (d) comprises selecting the operating parameter value using a processor programmed with an algorithm.

21-22. (Cancelled)

23. (Original) The method according to claim 1, wherein (a) comprises receiving the first signal from a fluid flow sensor.

24. (Original) The method according to claim 1, wherein the first signal is generated by an input entered by a user.

25. (Original) The method according to claim 1, wherein (b) comprises receiving the second signal from an impedance sensor.

26. (Cancelled)

27. (Original) The method according to claim 1, wherein (c) comprises receiving the third signal from a distance sensor.

28. (Cancelled)

29. (Cancelled)

30. (Original) A method of supplying energy to an ablation electrode comprising the method of claim 1 and further comprising:

(e) controlling an energy supply such that energy is supplied to the ablation electrode at the selected operating parameter value.

31-33. (Cancelled)

34. (Withdrawn) A system comprising:

a catheter having a shaft;

an ablation electrode positioned on the shaft;

an energy supply;

an input interface configured to receive a signal representing a value of a fluid flow rate, a signal representing a value of an impedance, and a signal representing a value of a distance from an electrode surface to a target tissue surface;

a processor operatively connected to the input interface and programmed to select an operating parameter value for supplying energy to the ablation electrode with the energy supply, the selection being a function of the three signals received by the input interface; and

an output interface operatively connected to the processor and configured to provide the selected operating parameter value.

35. (Withdrawn) A computer-readable medium having instructions stored thereon that, as a result of being executed by a computer, instruct the computer to perform a method comprising:

(a) receiving a first signal representing a value of a fluid flow rate;

(b) receiving a second signal representing a value of an impedance;

(c) receiving a third signal representing a value of a distance from an ablation electrode surface to a target tissue surface; and

(d) selecting a value for an operating parameter for supplying energy to the ablation electrode as a function of the first, second and third signals.

36-37. (Cancelled)

38. (Currently Amended) A method of selecting an operating parameter value for transmitting energy to tissue, comprising:

(a) receiving a first signal representing a value of a ~~fluid~~ blood flow rate near the tissue;

(b) receiving a second signal representing a value of an impedance; and

(c) selecting a value for a positive distance to set an ablation electrode surface apart from a target tissue surface as a function of the first and second signals.

39-90. (Cancelled)

91. (New) The method according to claim 38, wherein (a) comprises receiving the first signal from a fluid flow sensor.

92. (New) The method according to claim 38, wherein (b) comprises receiving the second signal from an impedance sensor.